MEHUL GOEL

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ACHIEVEMENTS

Bitcamp (2024): Top 3 Hack, Most Innovative
HACK CMU (2023): Best Campus Hack
Microsoft Imagine Cup: MVP Qualifier
AAAI Conference: Top Peer-Reviewed Publication

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, MySQL, R, MatLab, Julia, Assembly x86, C#, Rust, Swift, Go, Dart
Frameworks: ReactJS, NodeJS, Tailwind, Flutter, Electron
Developer Tools: Git, Docker, AWS, Firebase, XCode
Libraries: PyTorch, OpenCV, Scikit, Tensorflow, Ultralytics

EDUCATION

Carnegie Mellon University - School of Computer Science   Pittsburgh, PA
*BS in Computer Science, Minor in ML and Robotics | **Dean's List - High Honors***   *May 2026*
***Courses**: Intro to AI | Intro to Deep Learning | Data Structures & Algorithms | Linear Algebra | Multivar Calc*   **4.0 GPA**

Lynbrook High School   San Jose, CA
***Valedictorian**, 3 Honor Societies, 2x Club President*   *May 2023*

EXPERIENCE

MattLab - Computer Vision ML Research Intern   August 2023 – May 2024
Carnegie Mellon University Robotics Institute ○ Apple Inc.   *Pittsburgh, PA*
- Developed **CV implementation** based off ResNet50 to segment internal parts of iPhones and iPads
- Implemented **SORT Tracker** for classification of moving parts at **real-time** with **96%** IOU (Accuracy Metric)
- Incorporated **YOLO V8** for top-down model to detect screws, on iPhones, iPads with **93%** accuracy

ML Performance Modeling Chip Architect Intern   April 2022 – September 2022
D-Matrix ($100 million evaluation startup)   *Santa Clara, CA*
- Developed silicon performance modeling software with **97%** accuracy for ML models {BERT, ResNet, etc.}
- Improved **hardware resource utilization** by 46% by using a weighted round-robin load balancing method
- Created a memory modeling software for proposed silicon, that identified bottlenecks in design

Introduction to Imperative Programming Teaching Assistant   January 2024 – Present
Carnegie Mellon University   *Pittsburgh, PA*
- Leading interactive labs for **60+** students, teaching fundamentals of coding, C, and data structures
- Held office hours for personalized support, focusing on conceptual questions and complex C programs
- Working with professors to create collaborative and engaging problem sets to challenge ∼**500** students

PROJECTS

ChatGPT2 Recreation | *Deep Learning, PyTorch, NumPy, ChatGPT, Transformers*   June - August 2024
- Took the deep learning course **Stanford 231 N**, about image classification, RNN's, Transformers, CNN's
- Following Andrej Karpathy's tutorials created a **generative AI** model, based upon ChatGPT2 architecture
- Created MyTorch, replica of PyTorch from only NumPy, including layers like BatchNorm, Convolution, GeLU

MBR Sim Author | *Python, ResNet, BERT, GPT, Transformers, Matplotlib*   September 2022 – Feb 2023
- Presented paper to **30+ audience members**, passing rigorous approval period with **2** separate peer-reviews
- Built modeling software for silicon to test **10+** ML Workloads, compatible with CPUs, GPUs, and TPUs
- Modeled memory and performance of Google TPU and other hardware within **5%** of lab measurements

I Want That | *Firebase, Flutter (iOS), Gemini, AWS, Vector Embeddings, Google Cloud*   June - August 2024
- Published an app to the iOS app store for the Google Gemini API competition, within **2 months**
- App connects users with artists for custom commissions, based upon multi-modal LLM: Gemini AI
- Implemented semantic search using Gemini's vector embeddings, >**50%** more accurate than DB query

RoboBuggy Software Lead | *Autonomous Driving, ROS, Python, LiDAR Vision*   August 2023 – Present
- Leading **team of 10** to have autonomous vehicle MPC steering controlling
- Built autonomous path planning to avoid obstacles including other vehicles at **30** miles per hour
- Using a depth camera and LiDAR system to identify location of other moving vehicles for obstacle avoidance

AuditAI | *Python, Computer Vision, JavaScript, Chrome Extensions, Flask,*   April 2024
- Using custom YoloV8 **image classification model** trained on over 10,000+ images with **98%** accuracy
- Deployed Chrome extension on sites like Reddit and Pinterest to identify AI-generated images
- Beat **85%** of humans in identifying AI images, and won **Most Innovative Hack** against 150+ teams